Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A process for separating a sperm type from a sperm population in a sperm sample by electrophoresis comprising subjecting the sperm population to an electric potential such that a sperm type move through an ion-permeable barrier and the sperm type is separated from the sperm population through the ion-permeable barrier.

2. (Currently Amended) The process according to claim 1 wherein the sperm type has a desired characteristic selected from the group consisting of motility, robustness, gender, ~~genetic make-up, morphological normality,~~ fertilizing potential, and combinations thereof.

3. (Original) The process according to claim 2 wherein the sperm type has fertilizing potential.

4. (Currently Amended) The process according to claim 1 wherein the sperm type has an undesired characteristic ~~selected from the group consisting~~ of poor motility~~, poor morphology, high levels of DNA damage and high levels of reactive oxygen species generation~~.

5. (Previously Presented) The process according to claim 1 comprising:

providing a sample containing sperm to a sample chamber of electrophoresis apparatus comprising a first electrolyte chamber; a second electrolyte chamber; a first sample chamber disposed between the first electrolyte chamber and the second electrolyte chamber; a second sample chamber disposed adjacent to the first sample chamber; a first ion-permeable barrier disposed between the first sample chamber and the second sample chamber; a second ion-permeable barrier disposed between the first electrolyte chamber and the first sample chamber; a third ion-permeable barrier disposed between the second sample chamber and the second

electrolyte chamber; and electrodes disposed in the first and second electrolyte chambers; and applying an electric potential between the electrodes causing at least one sperm type in the first or second sample chamber to move through the first ion-permeable barrier into the other of the first or second sample chamber.

6. (Previously Presented) The process according to claim 1 wherein the sperm sample contains at least two populations of sperm.

7. (Previously Presented) The process according to claim 1 wherein the electric potential is applied until at least one sperm type reaches a desired purity.

8. (Previously Presented) The process according to claim 5 wherein one or more of the first, second, or third ion-permeable barriers are electrophoresis membranes having a characteristic average pore size and pore size distribution.

9. (Previously Presented) The process according to claim 8 wherein all of the ion-permeable barriers are electrophoresis membranes having a characteristic average pore size and pore size distribution.

10. (Previously Presented) The process according to claim 5 wherein the first ion-permeable barrier is a large pore sized membrane.

11. (Original) The process according to claim 10 wherein the first ion-permeable barrier is a polycarbonate membrane having a pore size of about 1 to about 10 μm.

12. (Previously Presented) The process according to claim 1 wherein electrophoresis is carried out with a voltage range from 1 to 200 V.

13. (Previously Presented) The process according to claim 1 wherein electrophoresis is carried out with an applied current of up to about 75 mA.

14. (Previously Presented) The process according to claim 1 wherein electrophoresis is carried out with a field strength of 1 to 100 V/cm.

15. (Original) The process according to claim 14 wherein the field strength is from 16 to 20 V/cm.

16. (Previously Presented) The process according to claim 1 wherein electrophoresis is carried out from several seconds to about 15 minutes in an apparatus having a sample volume of about 100 μ to about 4 ml.

17. (Previously Presented) The process according to claim 1 wherein sperm is diluted in buffer having a concentration of between 1 to 100 mM.

18. (Previously Presented) The process according to anyone of claims 1 to 17 wherein the sperm sample has a sperm concentration of between about 0.1 and 250 x 10^6/ml.

19. (Previously Presented) The process according to claim 18 wherein the sperm concentration is between 15 x 10^6/ml and 140 x 10^6/ml are processed.

20. (Previously Presented) The process according to claim 1 wherein at least about 50% of the sperm type remains viable or substantially unchanged after separation.

21. (Previously Presented) The process according to claim 20 wherein at least about 60% of the sperm type remains viable or substantially unchanged after separation.

22. (Previously Presented) The process according to claim 21 wherein at least about 70% of the sperm type remains viable or substantially unchanged after separation.

23. (Previously Presented) The process according to claim 22 wherein at least about 80% of the sperm type remains viable or substantially unchanged after separation.

24. (Original) The process according to claim 23 wherein at least about 90% of the sperm type remains viable or substantially unchanged after separation.

25-26. (Canceled).

27. (Previously Presented) A method of fertilizing an ovum comprising contacting the ovum with a sperm type separated by the process of claim 1.

28. (Previously Presented) The process of claim 1, wherein 3.5 hours after treatment the separated sperm type has a motility value which is $94 \pm 10\%$ of the motility value of untreated sperm.

29. (Previously Presented) The process according to claim 1 wherein at least about 50% of the sperm type remains substantially unchanged after separation.

30. (New) The process according to claim 1 further comprising selecting the sperm type wherein the selected sperm type has a desired characteristic selected from the group consisting of motility, robustness, gender, genetic make-up, morphological normality, low levels of DNA damage, low levels of reactive oxygen species generation, fertilizing potential, and combinations thereof.

31. (New) The process of claim 1 further comprising selecting the sperm type wherein the selected sperm type has an undesired characteristic selected from the group consisting of poor motility, poor morphology, high levels of DNA damage and high levels of reactive oxygen species generation.